5752

PROJECT SPECIFIC PLAN FOR THE EXCAVATION CONTROL OF AREA 2, PHASE II – SUBAREA 3 (SUPPLEMENT TO 20300-PSP-0011)

DEMOLITION, SOIL AND DISPOSAL PROJECT

FERNALD CLOSURE PROJECT
FERNALD, OHIO

NOVEMBER 2004

U.S. DEPARTMENT OF ENERGY

20450-PSP-0006
REVISION A
DRAFT

-- 5752

PROJECT SPECIFIC PLAN FOR THE EXCAVATION CONTROL OF AREA 2, PHASE II – SUBAREA 3 (SUPPLEMENT TO 20300-PSP-0011)

Document Number 20450-PSP-0006

Draft
Revision A

November 2004

APPROVAL:

Jyh-Dong Chiou, Project Manager — Date
Demolition, Soil and Disposal Project

Frank Miller, Characterization/Waste Management Manager — Date
Demolition, Soil and Disposal Project

Tom Buhrlage, Soil Sampling Manager — Date
Demolition, Soil and Disposal Project

Brian McDaniel, Real-Time Instrumentation Measurement Program Manager — Date
Demolition, Soil and Disposal Project

Linda Barlow, Waste Acceptance Organization — Date
Safety, Health and Quality Division

Reinhard Friske, Quality Control — Date
Safety, Health and Quality Division

FERNALD CLOSURE PROJECT

Fluor Fernald, Inc.
P.O. Box 538704
Cincinnati, Ohio 45253-8704

TABLE OF CONTENTS

APPENDICES

LIST OF TABLES AND FIGURES

LIST OF ACRONYMS AND ABBREVIATIONS

A2PIIS3	Area 2, Phase II – Subarea 3
ASCOC	area-specific constituent of concern
ASL	analytical support level
COC	constituent of concern
EMS	Excavation Monitoring System
EWF	Equipment Wash Facility
FCP	Fernald Closure Project
FRL	final remediation level
GC	gas chromatograph
HPGe	High-Purity Germanium (Detector)
ICP/AES	Inductively Coupled Plasma/Atomic Emission Spectrometry
ICP/MS	Inductively Coupled Plasma/Mass Spectrometry
IMHR	Impacted Material Haul Road
µg/kg	micrograms per kilogram
MDC	minimum detectable concentration
MDL	minimum detection level
mg/kg	milligrams per kilogram
NaI	sodium iodide
OSDF	On-Site Disposal Facility
PID	photoionization detector
ppm	parts per million
PSP	Project Specific Plan
PWID	Project Waste Identification and Disposition Report
QC	Quality Control
RSS	Radiation Scanning System
RTRAK	Real-Time Radiation Tracking System
RWP	Radiation Work Permit
SEP	Sitewide Excavation Plan
SSOD	Storm Sewer Outfall Ditch
SUB	Subcontractor Laydown Area
SWRB	Storm Water Retention Basin
TAL	Target Analyte List
V/FCN	Variance/Field Change Notice
WAC	Waste Acceptance Criteria

1.0 INTRODUCTION

This Project Specific Plan (PSP) describes the data collection activities necessary to support excavation control and precertification activities of Area 2, Phase II – Subarea 3 (A2PIIS3), the Infrastructure Area. This PSP only represents the specific information regarding A2PIIS3. The general information that is routinely addressed in a PSP can be found in 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation*. While this PSP has section headings similar to a full-length PSP, where the information in the section is identical to the information in the General PSP (20300-PSP-0011), a reference to this General PSP is made and the information is not repeated.

1.1 PURPOSE

The purpose of this PSP is to provide specific direction regarding the excavation control and precertification of A2PIIS3. This detailed information includes reason to sample and constituents of concern.

1.2 SCOPE

The area included within the scope of this PSP is A2PIIS3, the Infrastructure Area. See Figure 1-1 for areas included in excavation control and precertification of this PSP. These include

- Trailer Complex Area (approximately 2.7 acres)
- Equipment Wash Facility (EWF, approximately 0.65 acres)
- Subcontractor Area (approximately 1.4 acres)
- Aquifer Project Laydown Area (approximately 3.2 acres)

The South Field Extraction System Valve House Area and the Impacted Material Haul Road (IMHR) will be covered under other documents. The schedule for implementation of this PSP is expected to begin late 2004. Excavation in A2PIIS3 will begin in fall of 2004. Precertification of this area will begin following successful completion of the excavation control process and prior to certification.

This PSP is not considered a work authorization document (for implementation of fieldwork) per SH-0012, Work Permits. Work authorization documents directing the implementation of fieldwork, per SH-0012, may include applicable Environmental Services procedures, Fluor Fernald work permits, Radiation Work Permits (RWPs), penetration permits, and other applicable permits.

1.3 VARIANCE/FIELD CHANGE NOTICE (V/FCN) DOCUMENTATION

The Variance/Field Change Notice (V/FCN) process is utilized to document the occurrence of two situations. The first is to document a change in protocol occurring when a modification in the characterization approach is required [e.g., a different decision process for defining the extent of contamination or for verifying that soil is below-waste acceptance criteria (WAC) or below-final remediation level (FRL) concentrations]. Factors that will be considered under special circumstances include safety of the workers, cost effectiveness, the need for a timely response, and impending weather conditions. This type of V/FCN requires agency approval prior to implementation.

The second situation requiring a V/FCN is to provide documentation of sampling and analytical activities and to provide variable information that is dependent upon field conditions and cannot be specified initially in this PSP. As part of the excavation control process, the collection of physical samples will be documented in applicable field logs and with V/FCNs. Additionally, the Data Group Form, FS-F-5157 will be generated per Procedure EW-1021, Preparation of the Project Waste Identification and Disposition (PWID) Report, following the generation of data from the analysis of physical samples. In this situation the use of this V/FCN form is not used to document a change in the protocol of this PSP, but is used to document sampling and analytical activities in order to demonstrate that these activities are compliant with the protocols of this PSP.

If a V/FCN is required, the Characterization Manager will document the change and requirements through the V/FCN process in accordance with Section 7.5 of the *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation*, 20300-PSP-0011.

1.4 KEY PERSONNEL

Refer to Section 1.4 of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation.*

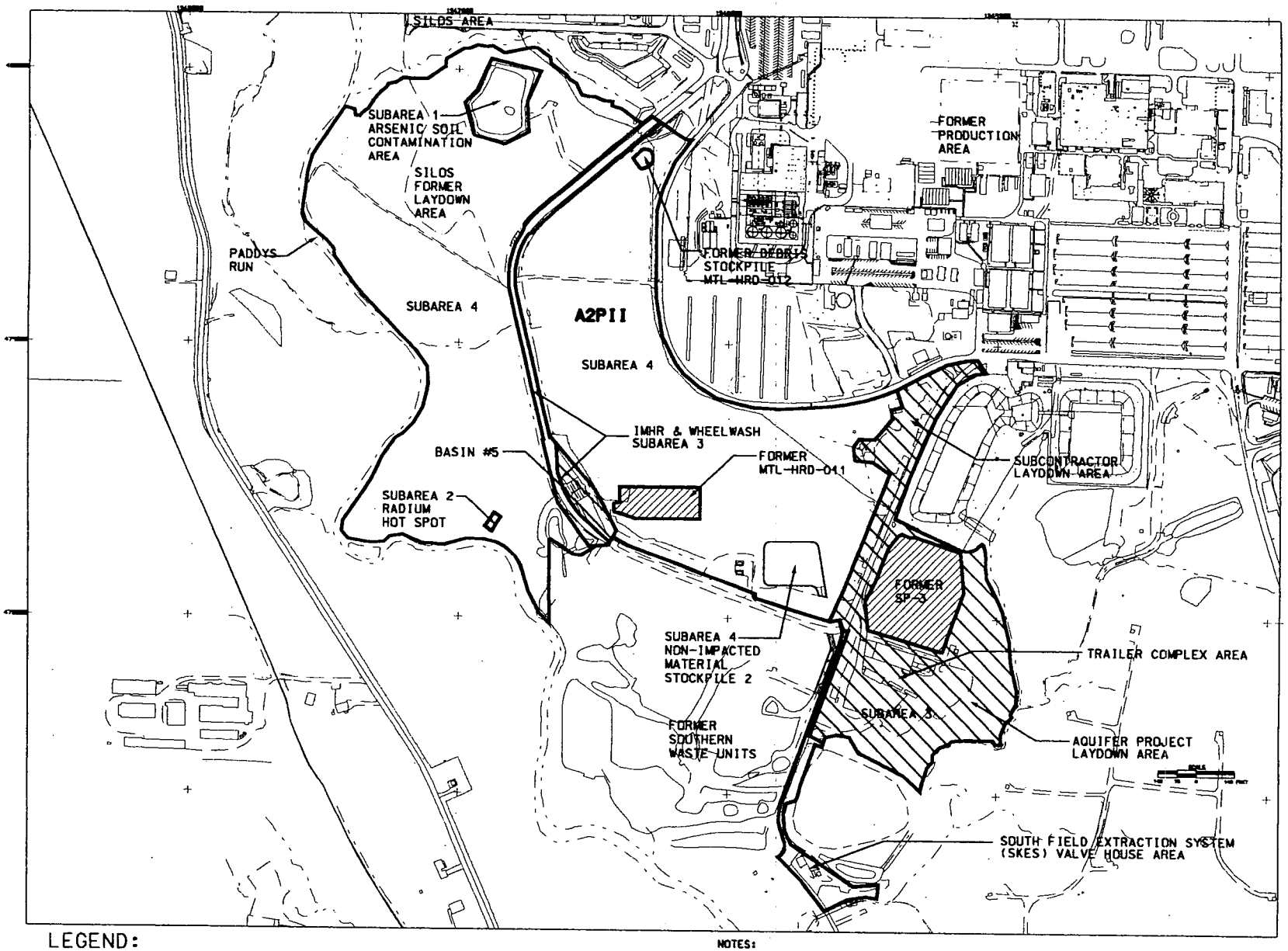

FIGURE 1-1. A2PII – SUBAREA 3, EXCAVATION CONTROL

2.0 AREA-SPECIFIC WORK REMAINING STATUS

2.1 AREA 2, PHASE II – SUBAREA 3

2.1.1 History

Area 2, Phase II (A2PII) is located in the southwest portion of the Fernald Closure Project (FCP) due south of the Silos area; south, southwest, and west of the Advanced Wastewater Treatment Facility; east of Paddys Run; and north of Area 2, Phase I. See Figure 1-1 for a representation of where these areas are. As outlined in the *Implementation Plan for Area 2, Phase II*, A2PII has four subareas. Subareas 1, 2, and 4 have already undergone predesign, excavation control, and precertification, and are certified.

As stated in the A2PII Implementation Plan, the Subarea 3 Infrastructure Area includes at- and below-grade structures, roadways, and underground utilities not related to groundwater remediation. As seen in Figure 1-1, it includes:

- Trailer Complex Area (approximately 2.7 acres)
- Equipment Wash Facility (approximately 0.65 acres)
- Subcontractor Area (approximately 1.4 acres)
- Aquifer Project Laydown Area (approximately 3.2 acres)

The IMHR and the South Field Extraction System Area were sampled and characterized under the *Project Specific Plan for the Predesign of Area 2, Phase II – Subarea 3 (Supplement to 20300-PSP-0011)*. The information from this effort was used to certify the IMHR under a separate document. The South Field Extraction System Area will also be addressed under a separate document.

2.1.2 Excavation Control

2.1.2.1 ASCOCs

The evaluation of the preliminary list of area-specific constituents of concern (ASCOCs) found in the *Sitewide Excavation Plan* (SEP) Table 2-7 for Remediation Area 2, data from the predesign investigation of the area, and historical information resulted in the following list of primary and secondary constituents of concern (COCs) for excavation control of A2PIIS3. These are the only COCs driving excavation.

Primary COCs

- Radium-226

Secondary COCs

- Aroclor-1254
- Arsenic

2.1.2.2 Excavation Types

There are no known On-Site Disposal Facility (OSDF) above-WAC areas defined for A2PIIS3 and none were identified during the predesign investigation of the area. Therefore, the types of excavation identified in A2PIIS3 will be for above-FRL areas (driven by radium-226, aroclor-1254, and/or arsenic) or simply to remove utilities, roads, or other structures. Real-time scanning for total uranium and radium-226 will be performed for above-FRL radiological areas per 20300-PSP-0011, Section 5.1. Physical sampling for arsenic and aroclor-1254 areas will be performed per 20300-PSP-0011, Section 5.2. Table 2-1 lists the excavation control COC limits for the COCs that will drive excavation in A2PIIS3. Tables 2-2 and 2-3 address the excavation monitoring and sampling requirements. See Appendix A for Target Analyte Lists.

2.1.2.3 Locations

All areas except the EWF contained points identified as above FRL. Table 2-4 lists these areas and gives more specific information about above-FRL locations and their associated COC's.

The road that runs between the Subcontractor Laydown Area (SUB) and the west Storm Water Retention Basin (SWRB) was found to have aroclor-1254 contamination that was bound at a depth of 2.5 feet. Samples within the SUB and adjacent to the samples from the road indicate that the contamination does not extend to the areas along the side of the road. Therefore, the road itself will need to be excavated to a maximum depth of 2.5 feet.

In the center of the parking lot for the SUB, aroclor-1254 contamination was found to a depth of 2.5 feet. Horizontal bounding was done offset 5 feet in the four cardinal directions. No further above-FRL aroclor-1254 was found. Therefore, only the area associated with the original sample location needs to be removed. Because this sample is bound to 3.5 feet, the excavation will be at least this deep.

East of the trailers in the Trailer Complex Area and in the Aquifer Project area north of the former active flyash pile, radium-226 and Arsenic contamination were found. The radium-226 was bound at 2.5 feet. Sampling is in progress to vertically and horizontally bound these sampling locations. Excavation will proceed based on the results of this additional sampling.

2.1.3 Precertification

Precertification will be performed per 20300-PSP-0011, Section 3.0 and Section 6.0.

TABLE 2-1
LIMITS FOR AREA 2, PHASE II - SUBAREA 3 EXCAVATION CONTROL COCS

Area 2 COCs	FRL	MDC
Aroclor-1254	130 µg/kg	13.0 µg/kg
Arsenic	12 mg/kg	1.2 mg/kg

µg/kg – micrograms per kilogram
MDC – minimum detectable concentration
mg/kg – milligrams per kilogram

TABLE 2-2
PHYSICAL SAMPLE ANALYTICAL REQUIREMENTS

TAL[1,2] (all ASL B)	Holding Time	Method	Sample Matrix	Preservative	Container	Minimum Sample Mass/Volume
TAL A Aroclor-1254	14 days	GC	Solid	Cool, 4°C	Glass with Teflon lined lid	100 grams
TAL B Arsenic (metals)	6 months	ICP/AES or ICP/MS	Solid	Cool, 4°C	Glass with Teflon lined lid	50 grams

[1] One sample per release shipped to an off-site laboratory shall be identified on the Chain of Custody/Request for Analysis forms as "designated for laboratory Quality Control (QC)" and shall have a triple aliquot sampled.

[2] All samples will be shipped off-site for analysis utilizing historical data.

ASL – analytical support level
GC – gas chromatograph
ICP/AES – inductively coupled plasma/atomic emission spectrometry
ICP/MS – inductively coupled plasma/mass spectrometry
TAL – Target Analyte List

TABLE 2-3
EXCAVATION MONITORING/SAMPLING REQUIREMENTS

Type of Contamination Zone	Types of Samples/Measurements and Data Use		
	Sideslope of Each Excavation Lift	Floor of Each Excavation Lift	Floor/Sideslope at Design Depth for Contamination Zone
Above-FRL Radium-226	• Real-time for Radium-226 FRL	• Real-time for Uranium (WAC)	• Real-time for Radium-226 FRL*
Above-FRL Non-Rad COC (e.g. Aroclor-1254, Arsenic)	• Physical Sampling/Lab for FRL	• Real-time for Uranium (WAC)	• Physical Sample per COC driving excavation

* During real-time uranium WAC/FRL scan, the data collected will be evaluated later for precertification purposes by reviewing concentrations of thorium-232 and radium-226, as well as thorium-228 and radium-228 based on equilibrium in comparison to their respective FRLs.

TABLE 2-4
AREAS EXCEEDING FRLs AND COCs

Locations		Contaminant	Depth (feet)
1	Subcontractor Laydown Area – length of road bordered on the east by the SWRB	Aroclor-1254	0-2.5'
2	Subcontractor Laydown Area – center of parking lot	Aroclor-1254	0-3.5'
3	Trailer Complex Area – East of trailers	Radium-226 Arsenic	0-2.5' 0->3.5'
4	Aquifer Project Area – West/Northwest of SSOD and North of the former active flyash pile	Radium-226 Arsenic	0-2.5' 0->3.5'

SSOD – Storm Sewer Outfall Ditch

3.0 INSTRUMENTATION AND TECHNIQUES

Reference the corresponding section of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation* for each of the following sections:

3.1 MEASUREMENT INSTRUMENTATION AND TECHNIQUES

3.1.1 Real-Time

3.1.1.1 Sodium Iodide Data Acquisition (RTRAK, RSS, GATOR, EMS)

3.1.1.2 HPGe Data Acquisition

3.1.1.3 Excavation Monitoring System

3.1.1.4 Radon Monitor

3.1.2 Surface Moisture Measurements

3.2 REAL-TIME MEASUREMENT IDENTIFICATION

3.3 REAL-TIME DATA MAPPING

3.4 REAL-TIME SURVEYING

4.0 PREDESIGN

The predesign investigation of A2PIIS3 was completed per 20450-PSP-0005, *Project Specific Plan for the Predesign of Area 2, Phase II – Subarea 3 (Supplement to 20300-PSP-0011).*

5.0 EXCAVATION CONTROL MEASURES

Reference the corresponding section of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation* for each of the following sections:

5.1 EXCAVATION DESIGN CONTROL REQUIREMENTS
5.1.1 Contamination Zone
5.1.2 Floors, Roads and Foundations
5.1.3 Real-Time Lift Scans
5.1.4 Above-WAC Lift Scans
5.2 ORGANIC SCREENING AND PHYSICAL SAMPLING REQUIREMENTS
5.2.1 Above-WAC Photoionization Detector (PID)/Gas Chromatograph (GC) Screening
5.2.2 All Other Physical Sample Requirements
5.2.3 PID Screening and Physical Sampling Procedures
5.2.4 Physical Sample Identification

6.0 PRECERTIFICATION

Reference the corresponding section of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation* for each of the following sections:

6.1 INITIAL PRECERTIFICATION NaI SCAN AT BASE OF DESIGN GRADE
6.2 PRECERTIFICATION HPGE MEASUREMENTS IN 20 PPM FRL (URANIUM) AREAS
6.3 PRECERTIFICATION HPGE MEASUREMENTS IN 82 PPM FRL (URANIUM) AREAS
6.4 DELINEATING HOT SPOTS FOLLOWING PRECERTIFICATION HPGE MEASUREMENTS

7.0 QUALITY ASSURANCE/QUALITY CONTROL REQUIREMENTS

Reference the corresponding section of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation* for each of the following sections:

7.1 QUALITY CONTROL SAMPLES - REAL-TIME MEASUREMENTS AND PHYSICAL SAMPLES
7.2 DATA VALIDATION
7.2.1 Physical Sample Data Validation
7.2.2 Real-Time Data Verification/Validation
7.3 APPLICABLE DOCUMENTS, METHODS AND STANDARDS
7.4 SURVEILLANCES
7.5 IMPLEMENTATION AND DOCUMENTATION OF VARIANCE/ FIELD CHANGE NOTICES (V/FCN)

8.0 SAFETY AND HEALTH

Reference the corresponding section of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation* for this section.

9.0 EQUIPMENT DECONTAMINATION

Reference the corresponding section of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation* for this section.

10.0 DISPOSITION OF WASTES

Reference the corresponding section of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation* for this section.

11.0 DATA AND RECORDS MANAGEMENT

Reference the corresponding section of 20300-PSP-0011, *Project Specific Plan Guidelines for General Characterization for Sitewide Soil Remediation* for each of the following sections:

11.1 REAL-TIME
11.2 PHYSICAL SAMPLES

APPENDIX A

TARGET ANALYTE LISTS FOR EXCAVATION CONTROL AND PREDESIGN

APPENDIX A
TARGET ANALYTE LISTS FOR EXCAVATION CONTROL AND PREDESIGN

TAL A

Analyte	FRL	MDL (soil)
Aroclor-1254	0.13 mg/kg	0.013 mg/kg

TAL B

Analyte	FRL	MDL (soil)
Arsenic	12.0 mg/kg	1.2 mg/kg

MDL – minimum detection level